FCC ID: 2A5AQ-Q37

RF exposure evaluation

According to§15.247(i), §1.1307 (b) and KDB447498, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the commission's guidance.

The SAR-based exemption formula of §1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). Pth is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20\,cm}(d/20\text{ cm})^x & d \leq 20\text{ cm} \\ ERP_{20\,cm} & 20\text{ cm} < d \leq 40\text{ cm} \end{cases} \qquad (B.2)$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\,cm}\sqrt{f}}\right)$$

F is in GHz, d is the separation distance (cm), and ERP20cm is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20\,cm} \text{ (mW)} = \begin{cases} 2040f & 0.3\text{ GHz} \leq f < 1.5\text{ GHz} \\ 3060 & 1.5\text{ GHz} \leq f \leq 6\text{ GHz} \end{cases} \qquad (B.1)$$

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. We use 5mm as separation distance to calculate

Portable device

Antenna Gain: -0.58 dBi
The maximun output power specified is: 1.21 dBm = 1.32 mW
The source- based time-averaging conducted output power
= 1.32* Duty factor mW (where Duty Factor≤1)
= 1.32 mW

The SAR Exclusion Threshold Level:

P_{th}(mW) = ERP_{20cm} * $(d/20cm)^{x}$ (X= $-\log_{10}\left(\frac{60}{ERP_{20\,cm}\sqrt{f}}\right)$)

          = 2.72 mW

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.